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10/618,522	07/11/2003	Tom Etheridge	200210053-1	5065

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EXAMINER

TALBOT, BRIAN K

ART UNIT PAPER NUMBER

1762

DATE MAILED: 05/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/618,522

Applicant(s)

ETHERIDGE, TOM

Examiner

Brian K. Talbot

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on telephone election on 5/4/05.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.  
4a) Of the above claim(s) 1-8 and 26-34 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 9-25 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 7/11/03; 12/13/04.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

*Election/Restrictions*

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-8, drawn to a composition, classified in class 106, subclass 1+.
  - II. Claims 9-25, drawn to method for forming, classified in class 427, subclass 96.1+.
  - III. Claims 26-27, drawn to substrate, classified in class 428, subclass 209.
  - IV. Claims 28-34, drawn to a system, classified in class 118, subclass 1+.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions II and IV are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the process as claimed can be practiced by another and materially different apparatus or by hand such as applying to coating by other than a print head such as by coating immersion/dipping.
3. Inventions II and III are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by another and materially different process other than ink-jetting from a print head such as by laminating the preformed layers.
4. Inventions IV and III are related as apparatus and product made. The inventions in this relationship are distinct if either or both of the following can be shown: (1) that the apparatus as

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claimed is not an obvious apparatus for making the product and the apparatus can be used for making a different product or (2) that the product as claimed can be made by another and materially different apparatus (MPEP § 806.05(g)). In this case the product as claimed can be made by another and materially different apparatus such as by hand or immersion/dipping.

5. Inventions II,III and IV and I are related as process, product and apparatus and composition for its practice. The inventions are distinct if it can be shown that either: (1) the process, product, apparatus as claimed can be practiced by another materially different composition, or (2) the composition as claimed can be used to practice another and materially different process in another and materially different apparatus to produce another and materially different product. (MPEP § 806.05(e)). In this case the process, product, apparatus can be practiced with another and materially different composition such as one without an aliphatic amine complex.

6. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

7. During a telephone conversation with Gary Oakesen on 5/4/05 a provisional election was made without traverse to prosecute the invention of Group II, claims 9-25. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-8 and 26-34 have been withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

***Specification***

8. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The claims of record are directed toward a method of forming electrical pathway by ink-jetting a palladium aliphatic complex.

***Claim Rejections - 35 USC § 112***

9. Claims 14,15 and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claim 14, the term “underprinted” is confusing. The Examiner questions how the second composition is “underprinted” with respect to the first composition when it is applied to the first coating. Clarification is requested.

With respect to claim 15, the term “overprinted” is not further limiting as the claims recite applying a first composition and subsequently applying a second composition onto the first composition. Clarification is requested.

With respect to claim 19, the phrase “said second composition being ink-jettable” is not further limiting as the claims recite applying by ink-jetting which would suggest that the composition is “ink-jettable” as the process would be inoperable if that was not the case. Clarification is requested.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beltzer et al. (3,222,218) in combination with Miller (4,668,533).

Beltzer et al. (3,222,218) teaches a metal coating process whereby a continuous film of silver or nickel is bound to a surface by contacting the surface with a solution of palladium to form the palladium complex, contacting the palladium complex with a reducing agent to convert to catalyst sites and contacting the catalyst site to form a metal layer. (col. 1 line 60- col. 2, line 5).

Beltzer et al. (3,222,218) fails to teach the process utilized to form electrically conductive pathways as well as applying the palladium and reducing solution by ink-jetting.

Miller (4,668,533) teaches ink jet printing of substrates to form circuits for the manufacturing of printed circuit boards. Ink jetting is utilized to apply sensitizers and activators (i.e. catalysts) on the substrates in patterns prior to contacting with electroless plating to form the circuits (abstract and col. 2, line 25 – col. 3, line 45).

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Therefore, it would have been obvious for one skilled in the art at the time the invention was made to have modified Beltzer et al. (3,222,218) process manufacture circuitry by ink-jet printing as evidenced by Miller (4,668,533) with the expectation of achieving similar success.

Claims 9-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tuttle (3,896,252) in combination with Miller (4,668,533).

Tuttle (3,896,252) teaches a process of metal plating on plastics comprising aminating the substrate by contacting with a diaminopropane in a solvent, contacting the treated substrate with a noble metal salt (including palladium) and finally contacting the palladium treated substrate with a reducing agent to form a catalyst layer. The catalyst layer is further plated in an electroless plating process (abstract).

Tuttle (3,896,252) fails to teach the process utilized to form electrically conductive pathways as well as applying the palladium and reducing solution by ink-jetting.

Miller (4,668,533) teaches ink jet printing of substrates to form circuits for the manufacturing of printed circuit boards. Ink jetting is utilized to apply sensitizers and activators (i.e. catalysts) on the substrates in patterns prior to contacting with electroless plating to form the circuits (abstract and col. 2, line 25 – col. 3, line 45).

Therefore, it would have been obvious for one skilled in the art at the time the invention was made to have modified Tuttle (3,896,252) process manufacture circuitry by ink-jet printing as evidenced by Miller (4,668,533) with the expectation of achieving similar success.

It is noted that a complex is applied separately from the metal as opposed to being applied as a single solution as claimed. While the Examiner acknowledges this fact, it is the

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Examiner's position that one skilled in the art at the time the invention was made would have had a reasonable expectation of achieving similar regardless of the number of steps utilized as long as the steps were metal and amine complex were combined prior to reducing the metal complex.

Claims 9-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gulla (3,846,138) in combination with Miller (4,668,533).

Gulla (3,846,138) teaches electroless copper plating. Gulla (3,846,138) teaches a common method for catalyzing a substrate prior to plating involves a two-step catalyst. First, the substrate is contacted with a reducing agent then a catalyst metal salt is applied whereby the catalyst metal salt is reduced to form catalytic sites. Subsequent plating follows to form the plated layers (col. 1 lines 50-70).

Gulla (3,846,138) fails to teach the process utilized to form electrically conductive pathways as well as applying the palladium and reducing solution by ink-jetting.

Miller (4,668,533) teaches ink jet printing of substrates to form circuits for the manufacturing of printed circuit boards. Ink jetting is utilized to apply sensitizers and activators (i.e. catalysts) on the substrates in patterns prior to contacting with electroless plating to form the circuits (abstract and col. 2, line 25 – col. 3, line 45).

Therefore, it would have been obvious for one skilled in the art at the time the invention was made to have modified Gulla (3,846,138) process manufacture circuitry by ink-jet printing as evidenced by Miller (4,668,533) with the expectation of achieving similar success.



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It is noted that the reducing agent is applied separately from the metal complex as opposed to being applied vice versa as claimed. While the Examiner acknowledges this fact, it is the Examiner's position that one skilled in the art at the time the invention was made would have had a reasonable expectation of achieving similar regardless of the sequence of steps as long as the steps were performed subsequently to reduce the metal complex to a catalytic site.

With respect to the heating step, it is the Examiner's position that one skilled in the art at the time the invention was made would have had a reasonable expectation of achieving similar success regardless of the application of a heating step during the reducing step. If Applicant disagrees, Applicant is invited to supply a showing of unexpected results regarding the criticality of the claimed heating step. It is noted that the showing should support "unexpected" as the prior art clearly shows, while silent, that the process without a heating step is successful.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian K. Talbot whose telephone number is (571) 272-1428. The examiner can normally be reached on Monday-Friday 6AM-3PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Handwritten signature of Brian K Talbot and the date 5/5/05.

Brian K Talbot  
Primary Examiner  
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BKT